

IN THE CLAIMS:

Please amend the claims of this application so as to read as follows:

1-27. (Canceled, without prejudice)

28. (Currently Amended) A data storage medium for use with a display device, said data storage medium having a plurality of pre-specified data units that together define a document recorded thereon,

wherein

each pre-specified data unit includes (i) display elements for display by the display device, and (ii) management elements associated with said display elements, said management elements including all information necessary for the display device to select among the display elements for display, including a display of selected ones or contiguous groups of said display elements in a predetermined sequence as a scroll display, and

wherein

said information for selecting among the display elements for scroll display defines a plurality of intervals that together form a scroll path among the display elements along which said scroll display is to be conducted, the intervals forming said scroll path being specified by line segments respectively defined by coordinate values of a starting point and an end point in a coordinate system defined by said pre-specified unit according to coordinate values assigned to the display elements in said pre-specified unit.

29. (Previously Presented) A data storage medium as defined in claim 28, characterized in that each pre-specified unit includes the display elements associated with a document page.

30. Canceled, without prejudice.

31. (Currently Amended) A data storage medium as defined in claim 28, characterized in that the information for selecting among the display elements or contiguous groups of display elements for scroll display includes information for linking a first scroll display path with another scroll display path.

32. (Currently Amended) A data storage medium for use with a display device, said data storage medium having at least one pre-specified data unit recorded thereon, each said pre-specified data unit including display elements to be displayed by said display device, and management elements associated with said display elements for controlling the display, including the scroll display, of said display elements or contiguous groups of said display elements, wherein said management elements include elements for controlling a scroll display speed.

33. (Currently Amended) A data storage medium

as defined in claim 28, characterized in that the management elements include management elements associated with selected areas of said coordinate system defined by said pre-specified unit associated with said selected ones or said contiguous groupings of said display elements for scroll display.

34. (Currently Amended) A data storage medium

as defined in claim 28, characterized in that the management elements include management elements specifying a scale of enlargement or reduction of the said display elements or contiguous groupings of display elements located along a scroll path for scroll display.

35. (Previously Presented) A data storage medium

according to Claim 28 wherein the management elements in each pre-specified data unit include display information and scroll display information, and

wherein the scroll display information includes synchronous reproduction information for specifying non-motionless display elements to be reproduced in synchronism with a scroll display of other display elements.

36. (Currently Amended) A display device for displaying display elements stored on a data storage medium as defined in any one of claims 28, 29, 31, 32, 33, 34 or 35, comprising a display controller for performing a scroll display of said selected ones or contiguous groups of said display elements based on said information for selecting among the display elements for scroll display .

37. (Currently Amended) A display device as defined in claim 36, further comprising a scroll indicating means for scroll display , and wherein said scroll display is conducted based on said information included in said management elements for selecting among the selected ones or contiguous groups of said display elements for scroll display only while a user instructs said display controller to perform scroll display in either forward or backward directions along a scroll path.

38. (Currently Amended) A data storage medium for use with a display device, said data storage medium having display data associated with an entire document recorded thereon, said display data including a plurality of image data objects for display on a display screen of said display device and all management information associated with each of said image data objects required by said display device for the display, including the scroll display, thereof, comprising:

a computer readable medium on which said display data is recorded in the form of distinct files, each said distinct file containing a pre-selected portion of said display data including at least one of said plurality of image data objects along with all of the respective associated management information required by said display device for the display, including the scroll display, thereof, wherein said management information for the scroll display of said image data objects includes scroll path information defining a plurality of intervals that together form a scroll path, said intervals being specified by line segments respectively defined by coordinate values of a starting point and an end point in a coordinate system defined by said distinct file according to coordinate values assigned to said image data objects or contiguous groups of said image data objects in said distinct file.

39. (Previously Presented) The data storage medium

as defined in claim 38, characterized in that the pre-selected portion of said display data is a document page grouping of said image data objects and all of the management information associated therewith required by said display device for the display, including the scroll display, thereof.

40. Canceled, without prejudice.

41. (Currently Amended) A data storage medium

as defined in claim 38, characterized in that the management information associated with the image data objects contained in each one of said distinct files includes information for linking a scroll display of selected ones or contiguous groups of image data objects contained in that file with selected ones or contiguous groups of image data objects located on a scroll path contained in at least another one of said distinct files.

42. (Currently Amended) A data storage medium

as defined in claim 38, characterized in that the management information associated with the image data objects or contiguous groups of image data objects in each said distinct file required for the scroll display of said image data objects or contiguous groups of said image data objects includes scroll display speed information.

43. (Currently Amended) A data storage medium as defined in claim 38, characterized in that the management information required by said display device for the scroll display of said image data objects or contiguous groups of said image data objects includes information specifying a scroll display area on a display screen of said display device within which said scroll display of said image data objects or said contiguous groups of said image data objects is to occur.

44. (Currently Amended) A data storage medium as defined in claim 38, characterized in that the management information required by said display device for the scroll display of said image data objects or said contiguous groups of said image data objects includes information specifying a scale of enlargement or reduction of a display area for scroll display on a display screen of said display device within which said scroll display is to occur.

45. (Currently Amended) A data storage medium
as defined in claim 38, characterized in that said management
information required for scroll display by said display device
associated with each said image data objects or contiguous groups
of said image data objects includes synchronous reproduction
information for specifying other image data objects to be
displayed in synchronism with the scroll display of each said
image data object or contiguous groups of image data objects.

46. (Currently Amended) A display device for displaying
image data objects or contiguous groups of image data objects
contained in at least one distinct file recorded on a data storage
medium as defined any one of claims 38, 39, 41, 42, 43, 44 or
45, comprising a display controller performing scroll display of
said image data objects or contiguous groups of said image data
objects located on a scroll path based on management information
associated with those image data objects or contiguous groups of
said image data objects required by said display device for the
scroll display thereof.

47. (Currently Amended) A display device as defined in claim 46, further comprising a scroll indicating means for monitoring the scroll display of said image data objects or contiguous groups of said image data objects on a display screen of said display device, wherein said scroll display is conducted based on the management information required for display, including scroll display, only while a user instructs said display controller to perform said scroll display in either forward or backward directions along a selected scroll path.

48. (Currently Amended) A data storage medium according to claim 28, wherein the information necessary for display, including scroll display, specifies a the scroll path of the said selected ones or contiguous groups of said data elements as including vectors connecting said intervals identified by starting and ending coordinate values of said data elements selected ones or contiguous groups of said data elements in a coordinate system defined by said display elements according to coordinate values assigned to the display elements in each of said pre-specified data units.

49. (Currently Amended) A data storage medium according to claim 48, wherein a sequential display of said selected ones or contiguous groups of said display elements is conducted along the predetermined sequence of intervals determined by said vectors.

50. (Currently Amended) A data storage medium

according to claim 28, wherein said information necessary for said display device to select among said display elements for the display, including the scroll display, thereof specifies a scroll path for the display of the said selected ones or contiguous groups of said display elements as including vectors connecting the intervals identified by starting and ending coordinate values of said selected ones or contiguous groups of said display elements in a coordinate system defined by said display elements data according to coordinate values assigned to the display elements in each of said pre-specified unit units; and wherein a sequential display of selected ones or contiguous groups of said display elements is conducted along the predetermined sequence of intervals determined by said vectors.

51. (Currently Amended) A data storage medium according to claim 38, wherein said management information required by said display device for the display, including the scroll display, of said image data objects or contiguous groups of said image data objects specifies the scroll path of the display of the image data objects or contiguous groups of the image data objects as including vectors connecting the intervals identified by starting and ending points of coordinate values of said image data objects in a coordinate system defined by said distinct files according to coordinate values assigned to said image data objects in each of said distinct files.

52. (Currently Amended) A data storage medium

according to claim 51, wherein a sequential display of said image data objects or contiguous groups of image data objects is conducted along a predetermined sequence of said intervals determined by said vectors.

53. (Currently Amended) A data storage medium

according to claim 38, wherein the management information required by said display device for the display, including the scroll display, of said image data objects or contiguous groups of said image data objects specifies the scroll path of the display of the image data objects or the contiguous groups of image data objects as including vectors connecting the intervals identified by starting and ending coordinate values of said image data objects in a coordinate system defined in said image data objects distinct files according to coordinate values assigned to said image data objects in each of said distinct files, and wherein a sequential display of said image data objects or contiguous groups of image data objects is conducted along a predetermined sequence of said intervals determined by said vectors.

54. (Previously Presented) A data storage medium

as defined in claim 28, characterized in that the scroll display control information includes a scale of enlargement or reduction of a display area for scroll display on a screen of said display device.

55. (Currently Amended) A data storage medium
as defined in claim 38, characterized in that the management
information required by said display device for the display,
including the scroll display, of said image data objects or
contiguous groups of image data objects includes a scale of
enlarge or reduction of a display area for scroll display on a
screen of said display device.